TIMEX-SINCLAIR

"New Lamps For Old!"

by Paul Donnelly

After a few modifications, you can run most ZX81 BASIC programs on our IBM PC or clone. This article will discuss one setup of hardware, software, and "sweatware," which will do the job.

To begin with, of course, your program must be written only in BASIC. Machine code subroutines, e.g., those buried in REMs, will not run on the PC or clone, as it has a completely different set of hardware (8086 microprocessor vs. Z80, etc.). You will find, however, that the logic, and often the actual code lines of your program, will probably work under Microsoft BASIC. See page 373.

As a practical example, I have taken a 168 line program (about 4K of code), which I use at work and downloaded it to a PC. Of the 168 lines, only about 10 required "pre-editing" before being accepted by MS BASIC, another 15 or so needed syntax changes, and about a dozen graphic statements (PLOTs) needed to be converted (to DRAWs). I had been running the program, which calculates label sizes for my company's products, but found the setup of the ZX81, just for this one program, a trifle tedious. Further, as others in the office all had PCs on their desks, it seemed to make more sense to move the software to their machines than set up the ZX81 each time it was needed.

Assumming your ZX81 program is all BASIC then, let us look at the uploading process. ZX81 files are stored in Sinclair BASIC, which uses non-standard character codes. Our first job, then, is to convert the text of the program to ASCII. Most ZXers probably already have hardware and software to do that. The hardware is

Now things get a littler tougher. We have an uploaded BASIC file which is now in ASCII format, but we still have not transferred it into the PC. One very standard way to do this is to use an RS232 port. There are a number of different implementations of these ports, but for our purposes, we will discuss the use of the Sinclair Interface One (IF1).

Again, since we really do not care whether the program runs at this stage, the differences between ZX Spectrum BASIC and 2068 BASIC are Moot. Simply load the previously saved 2068 program into your Spectrum (this can be the same 2068 outfitted with a twistor and IF1), and enter the following in direct mode:

```
FORMAT "t"  ; 110
OPEN #3     ; "t"
```

These commands will set your "t" channel up to transmit the program to the PC as a text file. We will use LLIST to do this, so you will lose any hidden variables and arrays. If your program has a lot of these you will have to use the "b" channel. This can be set up the same way but will require some fancy software at the other end, to recover the variables. Such a program is beyond the scope of this article. Rest assured, however, that it can be done. The MS BASIC program to do so would have to discount the systems variables area and the program variables, since both can contain "illegal" ASCII characters (like 26, or Control Z), which can make even EDLIN (IBM's line editor) go crazy.

The "Spectrum" end of your "London Bridge" is now ready to go, but the bridge itself is going to require some finagling. Sinclair Research, in their infinite wisdom, has made their RS232 port a non-standard DTE (Data Terminal) port. The IBM PCs ASYNC

bare female connectors (you need two) for $2.29 each. A better deal here is to build the null-modem and gender adapter into one shell).

Under normal circumstances, your hardware connections should be complete at this point. However, if you plug the adapter and cables together, you will probably find that, even at 110 BPS, you get garbled transmission, or none at all. In my first attempt this occurred primarily because my null-modem was of the non-handshaking type.

One more adapter, to the rescue. This third little hardware helper is an item called a "test adapter." Quite frankly, I bought this item simply because I did not know what it did. It is a very simple device which passes all the RS232 lines thru, but also references them all to ground thru diodes. In effect, it provides a "logic" circuit that lets you get away with some sloppy handshaking procedures. Rough schematics for all three adapters are shown in Figure 2. Note that while I use 3 separate adapters, all three could be built into one shell or a small project box.

To upload your program, all that is left is some communications and file handling software at the PC end. If you have access to a package like CrossTalk, PC Talk or Smartcom, then you need only load and run those. If not, the short MS BASIC program below will do the job (Enter this program into your PC in BASIC).

```
10 CLS
20 DEFINT A-Z
30 OPEN "com1:110,N,8,1" AS #1
40 COM(1) ON
50 OPEN "a:program" FOR
   OUTPUT AS 2
60 CLS: LOCATE,,1
70 PRINT "Working
80 ON COM(1) GOSUB 150
```

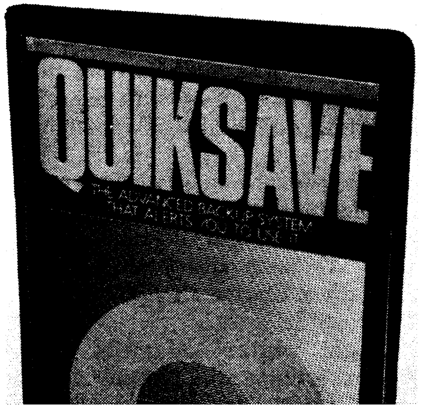
continued on page 370

HEATH/ZENITH

Expanding Your Heath/Zenith PC

by Ted Drude

This month, we'll be taking a look at a new hard disk backup utility, QuikSave, which can greatly automate the routine backup process. It makes backing up much less bothersome, and a lot easier for the non-techies who have to use PCs for all sorts of tasks in the office. And for those who've wanted one of the reader services disks we've offered in the past, you have another chance (see the section later in this article).



Micro Interface's QuikSave Hard Disk Backup Utility

Microsoft BASIC. See page 373.

As a practical example, I have taken a 168 line program (about 4K of code), which I use at work and downloaded it to a PC. Of the 168 lines, only about 10 required "pre-editing" before being accepted by MS BASIC, another 15 or so needed syntax changes, and about a dozen graphic statements (PLOTs) needed to be converted (to DRAWs). I had been running the program, which calculates label sizes for my company's products, but found the setup of the ZX81, just for this one program, a trifle tedious. Further, as others in the office all had PCs on their desks, it seemed to make more sense to move the software to their machines than set up the ZX81 each time it was needed.

Assumming your ZX81 program is all BASIC then, let us look at the uploading process. ZX81 files are stored in Sinclair BASIC, which uses non-standard character codes. Our first job, then, is to convert the text of the program to ASCII. Most ZXers probably already have hardware and software to do that. The hardware is the TS2068 (Timex) and the software is the Public Domain program e-FirstLoadR (also sold as Upload 2000). The program and a detailed description of its use can be found in the January 1985 issue of *Syntax* magazine. Briefly, FirstLoadR, is loaded into the 2068, the ZX81 BASIC program is then loaded in after executing a USR call to the MC (Machine Code) portion of FirstLoadR. The process takes some time, and loading levels are quite twitchy (remember you are loading a ZX81 tape into the TX2068's circuits). At this point, as I am sure most readers know, you will have an uploaded program but it probably will not run correctly. This is because of some syntax differences between ZX81 BASIC and 2068 BASIC. These are not terribly serious, but do take time ("sweatware") to find and correct. Since we are trying to get our program to run on an IBM PC, there is really no point in making any corrections to the listing at this stage. Save the program several times to tape.

enter the following in direct mode:

```
FORMAT "t"  ; 110
OPEN #3     ; "t"
```

These commands will set your "t" channel up to transmit the program to the PC as a text file. We will use LLIST to do this, so you will lose any hidden variables and arrays. If your program has a lot of these you will have to use the "b" channel. This can be set up the same way but will require some fancy software at the other end, to recover the variables. Such a program is beyond the scope of this article. Rest assured, however, that it can be done. The MS BASIC program to do so would have to discount the systems variables area and the program variables, since both can contain "illegal" ASCII characters (like 26, or Control Z), which can make even EDLIN (IBM's line editor) go crazy.

The "Spectrum" end of your "London Bridge" is now ready to go, but the bridge itself is going to require some finagling. Sinclair Research, in their infinite wisdom, has made their RS232 port a non-standard DTE (Data Terminal) port. The IBM PCs ASYNC card is also configured as DTE. This means that both systems are set up to talk to Modem's but not other terminals. To get around this problem, we need a "null-modem." This is a device which, simply put, "twists" the communication lines so that the receiving line of one device (RD) is connected to the transmit (TD) line of the other. Some handshaking lines are also switched in the null modem adapter. See Page 373.

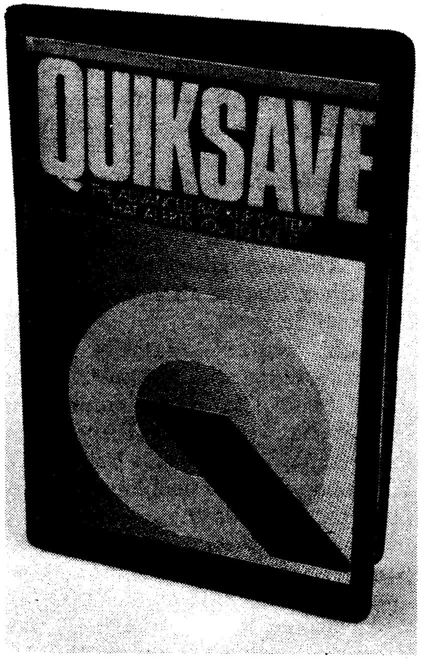
With a null modem adapter on the end of your IF1 cable, you might think you are all set, however, at this point you have probably noticed that both the PC and your cable end have male plugs (pins instead of sockets). The next item you will need is a F-to-F DB25 "gender changer." These are wired straight through and can be obtained from a number of supply houses, or home made. (Just a hint, buying the parts to make a F-to-F adapter from Radio Shack is not cost effective. Gender changers can be bought for as little as $4.00 (Computer Expert in NYC) whereas RS sells the

HEATH/ZENITH

Expanding Your Heath/Zenith PC

by Ted Drude

This month, we'll be taking a look at a new hard disk backup utility, QuikSave, which can greatly automate the routine backup process. It makes backing up much less bothersome, and a lot easier, for the non-techies who have to use PCs for all sorts of tasks in the office. And for those who've wanted one of the reader services disks we've offered in the past, you have another chance (see the section later in this article).



Micro Interface's QuikSave Hard Disk Backup Utility

There seems to be a sea of new hard disk backup utility programs on the market. After Fifth Generation's FastBack appeared, almost everyone, it seems, decided to try their hand at improving the DOS Backup/Restore system. The result is that there are now many programs that do faster backups, more data compression, etc. And, for most 10-30 Meg. drives, these programs can be practical, yet less expensive alternatives to streaming tape drives. But, that's only true if they are used regularly. If you don't keep your backups current, then they are useless, no matter how fast they are.

Micro Interfaces realized that regular backups are very important when they designed their new backup utility, QuikSave. You may remember Micro Interfaces as the company who wrote RUN/CPM, the great CP/M emulator which we reviewed in this column many moons ago. They have since turned their efforts to backup utility software, and have done another outstanding job. QuikSave, which retails for $99, has some unique features that distinquish it from other backup programs.

When Micro Interfaces was developing QuikSave, they saw that there was a real problem in getting users, especially non-technical users, to regularly backup their data. Research had shown that most hard disk were not backup regularly at all, due mainly to a lack of consistent scheduling, or forgetfulness on the part of the operator. Micro Interfaces decided that integral to QuikSave's design would be features to address this problem.

As Micro Interfaces Dan Roby ex-

continued on page 192

New Lamps For Old

continued from page 186

```
90 PRINT "Loading block:" ;L
100 IF L>40 THEN 120
110 GOTO 60
120 CLOSE #1
130 CLOSE #2
140 END
150 LET L = LOC(1)
160 A$ = INPUT$(1,#1)
170 PRINT #2;A$;
180 RETURN
```

This program is admittedly crude (no error or EOF trapping) but it will put your file onto an MSDOS formatted diskette, as an ASCII file.

To make the actual tranfer:

1. Run the program on your PC.
2. If it stops with a "Device Timeout" error, simply run it again.
3. Make sure you have a formatted diskette in Drive A:
4. Enter LLIST on your "Spectrum."
5. Watch the Spectrum screen. When data transfer is complete (this can take ten minutes for a 4-5K program), you will get the 0 O.K. message. The disk drive on your PC will come on and go off several times during the transfer, as it adds blocks of data to the file.
6. Close #1 and Close #2 on your PC.
7. Type SYSTEM on your PC.
8. Type Dir. You should see the temporary file "TEMP" listed. The byte count should be close to the number of bytes in your Spectrum program (do a header reader on the 2068 version as a cross check.).
9. The big moment has arrived: Type in: Type TEMP and enter it. You should see a listing of the ASCII file which looks like a workable BASIC program.
10. Begin editing of the TEMP file. From DOS, get your EDLIN utility (or other similar program—even some word processors will work) and look for blank lines. Put REM on the line after the line #, or simply delete it. Also look for CR/LF's (carriage return/line feeds) in the middle of long text lines. This will be interpreted as "Direct Statements" in your file and rejected by the MS BASIC interpreter. Get rid of these and you are ready to test the file in BASIC.
11. After exiting from EDLIN, copy the program as a BASIC file:

    Copy TEMP TEMP BAS
12. Enter BASIC again
13. Load "TEMP." The program

continued on page 373

Sinclair Survival Column

by Mark L. Fendrick

Continuing on our recent theme of telecommunications for the Sinclair computers (necessary for you to join us in C*SIX, the *Computer Shopper* Information Exchange, on DELPHI), this month we take a look at another new terminal program for the QL. Q_ Link is published by Meta Media Productions (726 West 17th; Vancouver, BC V5Z 1T9; CANADA) and written by Harvey Taylor.

Q_Link is written to work with just about any type of modem you might have, but we will assume that the average user these days has a Hayes compatible modem for purposes of this review. (The program itself gives you the ability to customize the commands if you do not in fact have a modem utilizing the Hayes (AT) command set.

Although Q_Link will allow you to dial by using your telephone dial and then activating your modem, the most convenient way—if you have an autodial modem—is to let the program send the necessary codes and then watch your modem do its magic. The default dialing command with Q_Link is the Hayes ATDP (ATtention Dial Pulse). If you are connected to a phone system which is Touch Tone compatible you may want to change this default to the ATDT (ATtention Dial Pulse) command which will dial much quicker. In either case the pulse method of dialing will indeed work.

You initially will have to enter a list of online services and/or BBS's which you will want to have available to you and which the program will automatically dial for you. You are allowed up to 20 characters to define the remote computer and up to 15 characters to define the telephone number to be dialed to connect to the computer, giving you enough characters to get through a PBX or Centrex type system. Q_Link also supports the necessary pauses required between requesting an outside line on these systems and receiving one.

You will also have the ability to enter a signon which will include the user ID's or passwords which might be necessary to log on to the system you are calling. Each signon entry may be up to 59 characters long. (Once you have signed onto DELPHI you can use this to store your username and password.)

One of the nicer features on Q_Link is its redialing feature. Often when you try to call a popular local bullentin board (more so than a major online service) you can find that it is busy. By entering a list of BBS numbers, Q_Link will attempt to connect with one of them. If when the first number is called, a NO CONNECT message is received, the program will proceed to dial the next number in the list. If the end of the list is reached without a successful connect, the first number on the list will be repeated as will the entire procedure. If you just wish a single number to be tried repeatedly, a single BBS is entered and it will be repeatedly attempted until a connection is made. If an ERROR message is received while making these attempts, your QL will start to beep at you to get your attention and will continue until you respond. This will abort the automatic redial procedure.

Once you have succeeded in connecting with the remote computer, you will want to send one of the signons which you have previously entered. Q_Link allows a total of 20 different signons which you can send with two keystrokes apiece. If your particular online service or BBS requires more than one piece of information before you can log on (such as DELPHI's username and password), you would enter each into a separate signon string and send each at the proper time. Your signon string is not echoed to your screen for security purposes.

One of the most important features of any terminal program (and missing from most of the earliest Sinclair terminal programs) is the ability to upload (send) and download (receive/store) information from the remote computer. As the ability to send/store/retrieve programs (public domain if you please) becomes more and more sophisticated, a reliable way of transferring the information is a must for any software which intends to become widely accepted. The earliest programs for the Sinclair computers could send from and receive to a small buffer—but without any sort of error checking protocol. No provisions were made to be able to LOAD anything into this buffer, or SAVE the contents of the buffer to tape (microdrives were unheard of in those dim ages and floppy disk drives were only for the "real" computers!). Sure there were ways of tricking the program into doing these things, and *Computer Shopper* readers were instructed how to do just that in this column in its pioneer days. But the program itself was unable to accomplish those feats.

Again readers of this column became aware of Xmodem protocol as it became popular and started appearing in software for our micros. Today, unless a terminal program includes Xmodem it has little chance of being widely accepted. Q_Link does not disappoint us in this respect. In fact,

continued on page 372

More Timex Sinclair

by Michael O'Brien

My list of New Years resolutions looks like the confessions of a choir boy. Quit smoking (in front of anyone who has read this list). Be a kinder, more sensitive and forgiving human being (is there software for that??), and limit my software purchases to only those that I can cover with my thumb while showing the VISA bill to my wife. The list is endless...

Happy New Year! Welcome to another exciting and informative year here at the *Computer Shopper*. As always, we will keep you abreast of new tips, suggestions, hardware/software reviews, techniques, rumors and technical support for the TS/1000, ZX-81, TS/1500, TS/2068, Spectrum, QL and Amstrad computers. For those who have written during the past year, thank you for your kind support and ingenious ideas and suggestions.

Each month I strive to obtain fresh and factual information through a variety of sources. First through an intricate network of dealers and users that either directly assist in the research and development of new products, or are best qualified to sample and appraise the products. I also rely on information that I obtain through the elaborate paper chase of newsletters that bond us all together. BBSs are not only an excellent source of information, I consider them in many ways the heartbeat of Sinclair-mania. In September of 1987, this article featured more explicit instructions on those specific BBSs. Finally, and most importantly I heavily rely on you the reader. Drop me your thoughts when you have a brief moment.

A brief explanation on this months article. As you probably are already aware, since Al Sugar and Amstrad purchased the Sinclair name, inventory and subsequent technology, the original Spectrum PCs have largely been regarded solely as "games machines." In all honesty (NOW I remember what that other New Years resolution was), although there are a fair collection of business, utility and application programs for the Spectrum, we generally have all reconciled ourselves to the "game" concept quite well. For that matter, there are some extremely good games available for the Spectrum; albeit primarily from abroad.

The other weekend, while still licking my wounds from an Indianapolis Colts game, I retreated to my modestly humiliating collection of Spectrum games. It was at that fateful moment that I discovered something frightening. While in the acquisition phase of my late twenties on my road to "yuppie-dom", I realized that I had not solved or completed most of the Spectrum games or adventures that I had acquired. A quick phone check of other dedicated Spectrum users confirmed my worst fears. I was not alone. Apparently hundreds of us are sitting on games that we either got bored with, or thought that there was no place to turn for help. Oh contraire mi amigo. While I am not prone to devoting most of an article to one subject, here is the help we all so desperately need. The tips, suggestions and gentle nudge you need to dust off a classic and kick butt. Look for the title in your collection, and read the appropriate tips. Later in the article, there are references to POKEING, these are codes that are poked in addition to/or in place of the header to whisk you into the dark winning recesses of the program. For complete details on the procedure please refer to my article from August 1987 *Computer Shopper*. Good luck and happy hunting.

StarStrike—One of my favorite cheats is to simply type in the words "I WANNA CHEAT" for infinite energy. Eventually you will be bored with your life as an arcade deity, then simply type in the word BORED to return to a more mortal status.

StarStrike II—To achieve infinite everything, type the words "HEAR AND OBEY".

Manic Miner—At the start type in the #6031769, then press different combinations of numbers to enter the rooms.

Cyberun—Load the following short program in place of the header. 10 LOAD "" CODE: RANDOMIZE USR 24576: PAPER 0: PRINT at 19,0; LOAD "" CODE: 20 POKE 23446,62: POKE 23447,175: POKE 23448,50: POKE 23449,72: POKE 23450,141: POKE 23451,195: POKE 23453,92.

30 Randomize USR 23424

Mikie—To obtain very high scores do the following: In the classroom get all the hearts on the screen and go to the desk. Shout three times from these places; the middle of the classroom, in the hall at the board on the wall, in the cafeteria from the middle hole at the top of the screen, once in the gym find the stereo at the left, then go to the middle of the screen and shout, and finally in the gym at the second junction shout at the machine.

Roller Coaster—From the starting point go right and press key three. You will lose a life BUT this slows gameplay down considerably until you press the three key again.

Cauldron—Hop on the broomstick, heres where the objects are located. Purple door-hemlock root, newts eye and juice of toad. Red door—molten lava. Blue door—bats wing and splintered bone. After gathering these items get the cauldron in the house boiling, go through the green door, to the end of the maze where the pumpkins cannot get you. Now get your broomstick and rejoice in sweet victory.

Gladiator—Here is a foolproof system to lay claim to victory every time. Select an axe, select a trident, select the two-pronged dagger, begin, throw the trident at the opponent, advance the opponent until you touch

continued on page 371

More Timex Sinclair continued from page 370

him (avoiding his weapon), either go up or down until you are above or directly below him, move slowly until he turns around, back up slowly until he walks in front of you, stab him in the back.

One Man And His Driod—Here are the passwords for the first ten levels: None, empire, predatory, ruminate, ryegrass, vacuum, vampire, ragout, grain and rasvogel.

Frankie Goes To Hollywood—In the ZZT room, use the flak jacket to free you from pain from the bullets, in the cybernetic and war rooms, use the wedding room to again free you from pain. The floppy discs and security pass can be put to use in the computer room. Do not waste anything.

The Lord Of The Rings—To enter the mines of moria-enter the password "friend". To destroy the black riders at bree-go north and into the bar, and send Pippen and Sam out to kill them. Once in Moria go up-east three times-then down, west, south and down. When you approach the door with animals heads, push only the head of the eagle to open it, then head east and up.

Bored Of The Rings—After encountering Goldblum, give him the platinum brick and search in the marsh where you will find sunglasses. Wear these and start back to Basilisk by going West twice, South, East, South and West twice again.

Hacker—Although I have yet to still solve this one, here are the codes to get you on your way. The codes will get you past all security checks: MAGMA, LTD. (be careful to type it exactly as is-commas, period and space after the comma intact or it will not work), AXD-0310479, Hydraulic and Australia.

Ship Of Doom—To cross the light beam, shine the torch at the light beam.

Commando—To get through the gates stand at the bottom of the screen and lob grenades and fire the machinegun simultaneously, after killing all of them the computer takes control of you and whisk you through the gate for more adventure.

Pokes For Spectrum Games

Pentagram-Poke 49917,0 before the last Rnd USR for infinite lives.

Saboteur-Poke 29894,0 for infinite lives.

Sai Combat-Poke 65364,201 infinite lives: Poke 32421,1 (use both pokes)

Trans Am-Poke 28610,0 to make the game harder (imagine that!) or Poke 98573,0 to make it even harder still.

Attic Atac-Poke 37260,175 this allows the doors to open much quicker.

Manic Miner-Poke 35136,0 and Poke 36160,0 for infinite lives.

Jet Set Willy-Poke 35899,0 for infinite lives. Poke 35123,0 to destroy nasties.

Jet Pac-Poke 36966,24 for infinite lives.

Lightforce-Poke 40725,0 for infinite lives.

Spindizzy-Poke 48272,201 and Poke 48401,201 for infinite time.

Dan Dare-Poke 36168, 175 for infinite lives.

Paperboy-Poke 48023,201 to be indestructible.

War-Poke 38394,0 for infinite lives.

1942-Poke 47007,255 for infinite lives.

Elite-Poke 46848,201 to kill the nasties.

The use of Pokes has spread like wildfire in Britian, and many paperbacks are available that are jam-packed with them. This concept of "cheating" fits our psychological pro-

HARD DRIVES
International

Seagate
MiniScribe

ST 225 20MB PC/XT KIT
65 MS ½ Height Hard Drive, Western Digital Controller, Cables & Manual $259

3438+ 30MB PC/XT KIT
55 MS ½ Height Hard Drive, W. D. or Adaptec Controller, Cables & Manual $289

ST 238 30MB PC/XT KIT
65 MS ½ Height Hard Drive, W. D. or Adaptec Controller, Cables & Manual $289

3650 40MB PC/XT KIT
52 MS ½ Height Hard Drive, Western Digital Controller, Cables & Manual $379

ST251 40MB $399
Half Height, 40ms—28ms formatted

ST277R 65MB $469
Half Height, 40ms—28ms formatted

ST4096 80MB $849
Full Height, 28ms formatted

6053 40MB $575
Full Height, 28ms formatted

6085 71MB $775
Full Height, 28ms formatted

All Seagate and Miniscribe drives larger than 30MB include: Cables, rails, manual and free copy of *"ON TRACK"* software to format and partition drive.

98573,0 to make it even harder still.

Attic Atac-Poke 37260,175 this allows the doors to open much quicker.

Manic Miner-Poke 35136,0 and Poke 36160,0 for infinite lives.

Jet Set Willy-Poke 35899,0 for infinite lives. Poke 35123,0 to destroy nasties.

Jet Pac-Poke 36966,24 for infinite lives.

Lightforce-Poke 40725,0 for infinite lives.

Spindizzy-Poke 48272,201 and Poke 48401,201 for infinite time.

Dan Dare-Poke 36168, 175 for infinite lives.

Paperboy-Poke 48023,201 to be indestructible.

War-Poke 38394,0 for infinite lives.

1942-Poke 47007,255 for infinite lives.

Elite-Poke 46848,201 to kill the nasties.

The use of Pokes has spread like wildfire in Britian, and many paperbacks are available that are jampacked with them. This concept of "cheating" fits our psychological profiles well, that of regarding the internal workings of a program as a challenge, then overcoming the challenge by using your programming skills to circumvent the programmers intentions. It truly is a skill in and of itself, and while it certainly is harmless it sharpens your knowledge and programming skills.

Amstrad

The British have come!!! With the purchase of Vidco by Amstrad, Al Sugar has a firm grasp on the American market for his products. I can only say that we can all look for an extremely organized and aggressive distribution and marketing campaign for Amstrad products. Although many plans are still behind closed doors, I look for a store on every corner, as is the case in the European markets. Those of you with PCW-8256, PC-1512, PCW-8512, Spectrum, and Sinclair computers should be able to draw from a massive international selection of software and hardware items that are currently difficult to find. ●

Seagate MiniScribe

ST 225 20MB PC/XT KIT
65 MS ½ Height Hard Drive, Western Digital Controller, Cables & Manual $259

ST 238 30MB PC/XT KIT
65 MS ½ Height Hard Drive, W. D. or Adaptec Controller, Cables & Manual $289

3438+ 30MB PC/XT KIT
55 MS ½ Height Hard Drive, W. D. or Adaptec Controller, Cables & Manual $289

3650 40MB PC/XT KIT
52 MS ½ Height Hard Drive, Western Digital Controller, Cables & Manual $379

ST251 40MB Half Height, 40ms—28ms formatted $399

ST277R 65MB Half Height, 40ms—28ms formatted $469

ST4096 80MB Full Height, 28ms formatted $849

6053 40MB Full Height, 28ms formatted $575

6085 71MB Full Height, 28ms formatted $775

All Seagate and Miniscribe drives larger than 30MB include: Cables, rails, manual and free copy of *"ON TRACK"* software to format and partition drive.

HIGH CAPACITY

220MB Miniscribe 6128 with Perstore ARLL Controller 28ms $1395

230MB Priam with RLL Controller 19ms $2495

HARD CARDS

Complete Hard Drive & Controller on Card
Each card takes up 1½ slots.

20MB CMS $295
30MB Miniscribe $375
40MB CMS $469

PO's ACCEPTED NET 15 / APPLE SUPPORTED / FREE APO/FPO SHIPPING / TANDY SUPPORTED / SCSI DRIVES

DEALER PRICING VOLUME DISCOUNTS

HARD DRIVES *International*

(800) 541-8387

INTERNATIONAL HOTLINE **(602) 967-3334**

VISA AMERICAN EXPRESS MasterCard

1208 E. Broadway Rd. #110, Tempe, AZ 85282 • (602) 967-1999

Prices and availability subject to change without notice. All Items are new and with manfacturer's warranty. All prices reflect a 3% cash discount. Unauthorized returns subject to a 15% restocking fee. We do not guarantee compatability. Purchase Orders accepted from government organizations & Fortune 5000 companies. Non-Dealers add 5% for C.O.D.

Is Your P.C.
Too Slow?
Put A
Bullet
In It!!

Bullet 286
Motherboard

Don't shoot it, replace your IBM PCXT (or compatible) motherboard with the Bullet 286 and increase your system speed by up to 15 times (Norton Utilities SI rating is 15.2 on the 12.5 MHz version).

The Bullet 286 includes a high speed 80286 with 1 megabyte of 0 wait state RAM and comes in four speed versions (7.2, 8, 10, 12.5 MHz). Built-in transparent disk caching is included. 80287 coprocessor optional.

Sinclair's Latest—A Notepad Sized PC

Sir Clive Sinclair presents his Z88 laptop computer.

Cambridge Computer Ltd. announced its new Z88 at COMDEX. The new laptop computer features an end-user price of approximately $400, dimensions of 11½" x 8¼" x 7/8" and built-in user-friendly software. Utilizing a Z80 processor with a unique operating system called OZ, the Z88 addresses up to 4 Mbytes of memory. Approximately 20K of RAM is available to the user.

Cambridge Computer Ltd. is the new venture of Sir Clive Sinclair, inventor of the $99 Sinclair computer. "The Z88 completely outstrips the competition on all counts. No other portable can even approach the performance, size, weight and convenience that the Z88 has to offer," said Sinclair.

"It is truly portable and is ideal for the business executive on the move, or for any application where individuals need to be mobile and have computer power at their fingertips," he added.

The Z88 uses solid-state data storage, of which additional RAM and EPROM cartridges can be purchased, and has easy-to-use built-in software that covers word processing and spreadsheet applications as well as simple database selection, calculator, diary, alarm, calendar and clock.

Software programs in the Z88 include PIPEDREAM which mixes wordprocessing, spreadsheet and database activities; DIARY, a free-form log; and Z80 BBC BASIC with a full in-line Z80 Assembler for mixing BASIC and machine mode.

PC LINK allows the computer to transfer and receive files from an IBM PC or compatible and converts PIPEDREAM into either WORDSTAR or LOTUS files. A serial cable connects the Z88 to a printer.

Also included are a QWERTY keyboard and supertwist LCD display with flicker-free readout of 8 lines of 106 characters.

The machine runs on four standard AA batteries, which will last for approximately 20 hours of active computing. The Z88 also has an optional AC adapter.

Cambridge Computer Ltd. is currently seeking U.S. distributors to market the new product.

Cambridge Computer Ltd. is located at Sidney House, Sussex Street, Cambridge, CB1 1PA, England. Telephone is (0223) 312216.

For more information contact Cambridge Computer Ltd. Public Relations, 5118 Vineland Avenue, North Hollywood, CA 91601; (213) 877-8775. ●

Sinclair Survival Column

continued from page 367

Q__Link is the first terminal program for the QL which I have seen which implements not only the older Xmodem checksum transfer, but supports the Cyclic Redundancy Code (CRC) which is now gaining in popularity as it is even more reliable than Checksum. When you invoke the Xmodem transfer procedure you are asked if you wish to use CRC. If you are unsure your best bet is to fall back to the checksum method which is almost universally supported. You will then be able to follow the progress of the file transfer by way of a status

switching between one task and another is CONTROL-C, which is often used in telecommunications to instruct the remote computer. Q__Link changes this to SHIFT-CONTROL-C in order to avoid this conflict. If you wish to multi-task something with Q__Link, such as a clock, it only requires a minor modification to the BOOT program, which is documented in the Q__Link manual.

You should be aware, however, of the amount of memory which is required to run each of the tasks. Q__Link itself is somewhat of a memory hog. The program itself occupies about 25K and then proceeds to reserve space for a number of buffers.

longer relegated to the domain of the "computer nerd," there is no reason why you should have to have anything less than the most complete telecommunications package with which to do your communicating. Time was when you needed a special modem built specifically for your Sinclair computer and the one and only software package which would work with that custom modem. The truth of the matter is that all of the Sinclair dedicated modems were in fact standard modems with an interface built in to connect to your specific computer. Although the QL comes with an RS232 port built in, there too you find that it is not as standard as one might hope, and when the QL first appeared you needed some

Bullet 286 Motherboard

Don't shoot it, replace your IBM PCXT (or compatible) motherboard with the Bullet 286 and increase your system speed by up to 15 times (Norton Utilities SI rating is 15.2 on the 12.5 MHz version).

The Bullet 286 includes a high speed 80286 with 1 megabyte of 0 wait state RAM and comes in four speed versions (7.2, 8, 10, 12.5 MHz). Built-in transparent disk caching is included. 80287 coprocessor optional.

Prices as low as

$425.00

Includes 1 Mb RAM caching

Quantity and dealer discounts available

Marchand International
1240 N. Van Buren
Unit 108
Anaheim, CA 92807
714-630-3382

VISA
M.C. Accepted

Sir Clive Sinclair presents his Z88 laptop computer.

Cambridge Computer Ltd. announced its new Z88 at COMDEX. The new laptop computer features an end-user price of approximately $400, dimensions of 11½" x 8¼" x 7/8" and

EPROM cartridges can be purchased, and has easy-to-use built-in software that covers word processing and spreadsheet applications as well as simple database selection, calculator, diary, alarm, calendar and clock.

Software programs in the Z88 include PIPEDREAM which mixes wordprocessing, spreadsheet and

Cambridge Computer Ltd. is located at Sidney House, Sussex Street, Cambridge, CB1 1PA, England. Telephone is (0223) 312216.

For more information contact Cambridge Computer Ltd. Public Relations, 5118 Vineland Avenue, North Hollywood, CA 91601; (213) 877-8775. ●

Sinclair Survival Column continued from page 367

Q__Link is the first terminal program for the QL which I have seen which implements not only the older Xmodem checksum transfer, but supports the Cyclic Redundancy Code (CRC) which is now gaining in popularity as it is even more reliable than Checksum. When you invoke the Xmodem transfer procedure you are asked if you wish to use CRC. If you are unsure your best bet is to fall back to the checksum method which is almost universally supported. You will then be able to follow the progress of the file transfer by way of a status screen showing the file name, mode of transmission, block number being received or sent, and the number of blocks which had to be repeated because of either a failed checksum of CRC check.

Q__Link also supports an ASCII transfer as well, and it is integrated with the Q__Link text editor for some sophisticated file and block handling. The editor allows you to prepare your text—or QL SuperBASIC program—for transmission. Once you have LOADed a file into the editor, you are not required to send the entire file thanks to the block commands. Once a block is marked you may treat the marked blocks as the entire portion of the file and either send just that block or SAVE it for future reference or use. There is even a function which enables you to remove the linefeeds from a line which may be necessary with some online systems.

One of the features of QDOS which is hardly ever taken into account by the existing software is the QL's ability to multi-task. The usual method of switching between one task and another is CONTROL-C, which is often used in telecommunications to instruct the remote computer. Q__Link changes this to SHIFT-CONTROL-C in order to avoid this conflict. If you wish to multi-task something with Q__Link, such as a clock, it only requires a minor modification to the BOOT program, which is documented in the Q__Link manual.

You should be aware, however, of the amount of memory which is required to run each of the tasks. Q__Link itself is somewhat of a memory hog. The program itself occupies about 25K and then proceeds to reserve space for a number of buffers. The Xmodem buffer is 16K and 32K is set aside for the Capture buffer. When you consider that an unexpanded QL has only about 81K available to the user upon powerup, and that the program immediately sets aside a total of 73K you see that there is not much RAM left to start multi-tasking.

One of the problems encountered with other QL terminal programs has been having to deal with the screen display resident in QDOS. This has been a major factor in slowing down many find programs while they had to deal with writing the incoming data to the screen. Often this results in lost characters and/or garbage on the screen while QDOS tries to catch up to the incoming information. Q__Link gets around this by bypassing QDOS entirely when it comes to writing to the screen. When ZOOM mode is requested for printing information is written directly to one of the two channels which make up the Q__Link screen.

With telecommunicating becoming a mainstay of the computing world, no longer relegated to the domain of the "computer nerd," there is no reason why you should have to have anything less than the most complete telecommunications package with which to do your communicating. Time was when you needed a special modem built specifically for your Sinclair computer and the one and only software package which would work with that custom modem. The truth of the matter is that all of the Sinclair dedicated modems were in fact standard modems with an interface built in to connect to your specific computer. Although the QL comes with an RS232 port built in, there too you find that it is not as standard as one might hope, and when the QL first appeared you needed some form of hardware adapter to make some necessary modifications to the signal (specifically dealing with necessary stop bits) to allow its full use with the American standards. Such an add on is the MODAPTER. Later, programs were developed which allowed higher speed modems (1200 baud/2400 baud) to be used without additional hardware. Now the Sinclair user can go online with practically any external modem on the market. In fact, I have yet to hear of one which cannot be used on the QL, and would be interested to hear your experiences in this area.

Finally, by this time I hope that I have had the opportunity to meet many of you in the *Computer Shopper* SIG on DELPHI, where a number of exciting guests have been lined up for our real time get togethers. Come join with many of the Sinclair pioneers from the ZX-80 and ZX-81s earliest days in the U.K. and the U.S.. This is your opportunity to talk with them, ask them about what those initial days were like. See you on DELPHI! ●

New Lamps For Old

continued from page 370

will probably load at this stage. If not, an error message should tell you what to look for.

14. Try to run the program. You will get syntax errors if you have statements like Print AT, PLOT, PAUSE or use graphics characters. Edit these to conform to MS BASIC (use LOCATE for PRINT AT; DRAW, for PLOT, etc.). You will find grahics especially annoying since Microsoft uses the silly "upside down" Y axis convention.

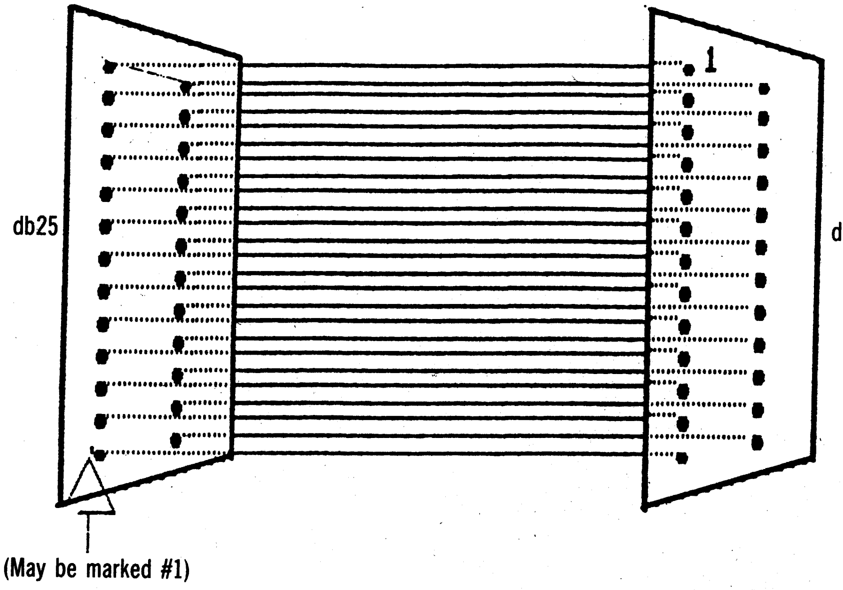
15. Keep editing and running your program. Make frequent saves (TEMP1, TEMP2,……TEMP50), so that you can recover from fatal changes. I have found that most math functions and logical operators work fine. Watch out for PI. you must specify it to MS BASIC (PI = 3.141533) as it is not built in. "Before" and "After" sections of my label program are included in Figure 3.

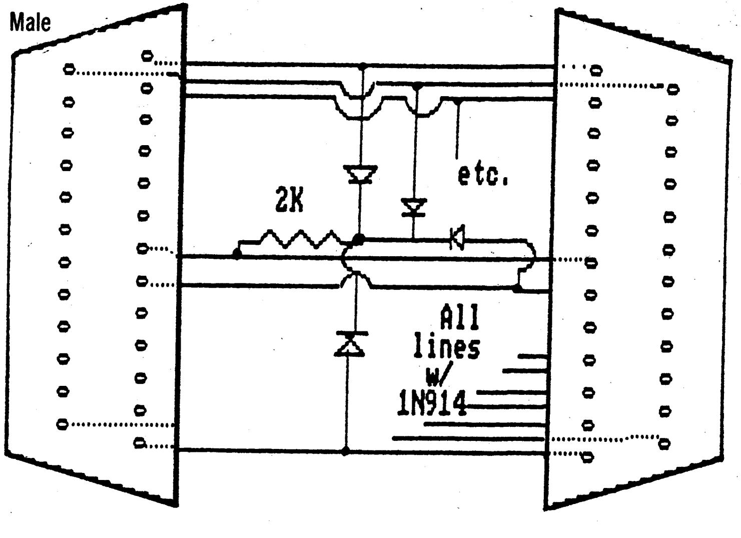
And that is it. You should now have that ZX81 program running on your PC or clone. In fact, you may even find that, as you review the logic of your original program, it may improve during the translation process. A final result which to many of us is better than what we would get from rubbing a lamp. ●

```
                               "NW"

                        NECK WRAP PROGRAM


  1  LET A=28.6
  2  LET B=50.8
  3  LET C=36.11
  4  LET D=53.83
  5  PRINT ""
  6  LET F=25.4
  7  CLS
  8  SLOW
 10  PRINT AT 4,5;"NECK WRAP CALCULATION"
 15  PRINT ,," THIS PROGRAM CALCULATES THE   MECHANICAL DESIGN PARAMETERS
     FORWRAP-AROUND NECK LABELS, FOR    BOTTLES WITH TAPERED NECKS."
 17  PRINT
 20  PRINT "  YOU WILL BE ASKED TO ENTER THE DIMENSIONS OF THE NECK AREA
     ( A  FRUSTRUM).   THE PROGRAM WILL CALCULATE LABEL SIZE."
 21  PRINT

 22  PRINT "  TO BEGIN PRESS ANY KEY"
 24  IF INKEY$<>"" THEN GOTO 29
 25  GOTO 24
 29  GOSUB 695
 30  GOSUB 900
 31  PRINT "DO YOU WANT TO WORK IN METRIC(M) OR ENGLISH(E) UNITS ?"
 32  PRINT
 33  PRINT "ENTER E OR M",,
 34  INPUT E$
 35  IF E$="E" THEN PRINT "WE'LL USE ENGLISH UNITS(I.E. DECIMAL INCHES)"
 36  IF E$="M" THEN PRINT "                "METRIC MEASUREMENTS MUST BE IN MILLIMETERS"
 37  IF E$<>"M" AND E$<>"E" THEN GOTO 33
 38  PAUSE 240
 39  CLS
```

This is the original TS1000 program.

```
1 LET A=28.6
2 LET B=50.8
3 LET C=36.11
4 LET D=53.83
5 PRINT ""
6 LET F=25.4
7 CLS
8 REM
10 PRINT AT 4,5;"NECK WRAP CALCULATION"
15 PRINT ,,"  THIS PROGRAM CALCULATES THE   MECHANICAL DESIGN PARAMETERS FOR
16 PRINT"WRAP-AROUND NECK LABELS, FOR    BOTTLES WITH TAPERED NECKS."
17 PRINT
20 PRINT "  YOU WILL BE ASKED TO ENTER THEDIMENSIONS OF THE NECK AREA( A  FRUS";

21 PRINT"TRUM).  THE PROGRAM WILL CALCULATE LABEL SIZE."
22 PRINT "  TO BEGIN PRESS ANY KEY"
24 IF INKEY$<>"" THEN GOTO 29
25 GOTO 24
29 GOSUB 695
30 GOSUB 900
31 PRINT "DO YOU WANT TO WORK IN METRIC(M) OR ENGLISH(E) UNITS?"
32 PRINT
33 PRINT "ENTER E OR M",,
34 INPUT E$
35 IF E$="E" THEN PRINT "WE LL USE ENGLISH UNITS(I.E. DECIMAL INCH)"
36 IF E$="M" THEN PRINT "METRIC MEASUREMENTS MUST BE IN  MILLIMETERS"
37 IF E$<>"M" AND E$<>"E" THEN GOTO 33
38 REM PAUSE 240
39 CLS
```





```
25  GOTO 24
29  GOSUB 695
30  GOSUB 900
31  PRINT "DO YOU WANT TO WORK IN METRIC(M) OR ENGLISH(E) UNITS?"
32  PRINT
33  PRINT "ENTER E OR M",,
34  INPUT E$
35  IF E$="E" THEN PRINT "WE'LL USE ENGLISH UNITS(I.E. DECIMAL INCHES)"
36  IF E$="M" THEN PRINT "                "METRIC MEASUREMENTS MUST BE IN MILLIMETERS"
37  IF E$<>"M" AND E$<>"E" THEN GOTO 33
38  PAUSE 240
39  CLS
```

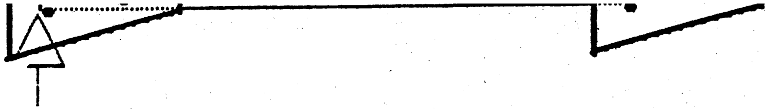
This is the original TS1000 program.

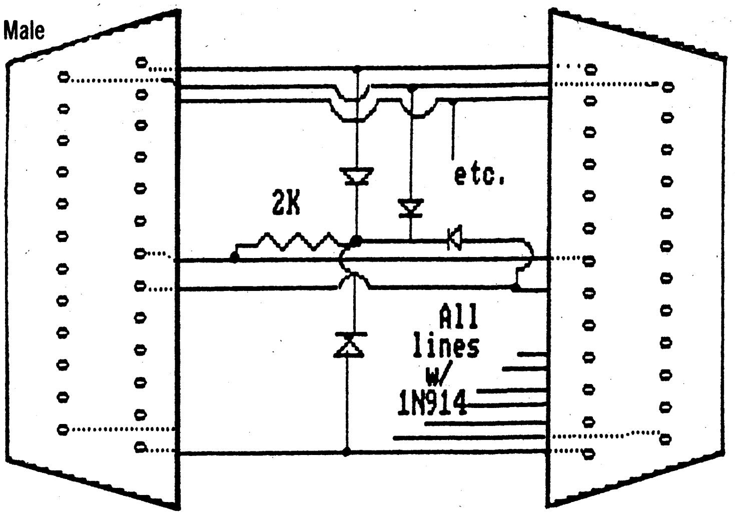
```
1 LET A=28.6
2 LET B=50.8
3 LET C=36.11
4 LET D=53.83
5 PRINT [illegible]
6 LET F=25.4
7 CLS
8 REM
10 PRINT AT 4,5;"NECK WRAP CALCULATION"
15 PRINT ,,"  THIS PROGRAM CALCULATES THE   MECHANICAL DESIGN PARAMETERS FOR
16 PRINT"WRAP-AROUND NECK LABELS, FOR    BOTTLES WITH TAPERED NECKS."
17 PRINT
20 PRINT "  YOU WILL BE ASKED TO ENTER THEDIMENSIONS OF THE NECK AREA( A  FRUS";

21 PRINT"TRUM).  THE PROGRAM WILL CALCULATE LABEL SIZE."
22 PRINT "  TO BEGIN PRESS ANY KEY"
24 IF INKEY$<>"" THEN GOTO 29
25 GOTO 24
29 GOSUB 695
30 GOSUB 900
31 PRINT "DO YOU WANT TO WORK IN METRIC(M) OR ENGLISH(E) UNITS?"
32 PRINT
33 PRINT "ENTER E OR M",,
34 INPUT E$
35 IF E$="E" THEN PRINT "WE LL USE ENGLISH UNITS(I.E. DECIMAL INCH)"
36 IF E$="M" THEN PRINT "METRIC MEASUREMENTS MUST BE IN  MILLIMETERS"
37 IF E$<>"M" AND E$<>"E" THEN GOTO 33
38 REM PAUSE 240
39 CLS
```

The same program after upload to the Timex 2068.
Note that there is no "SLOW" command, so line 8 is invalid. Also, while PLOT works on the 2068, the drawing will be quite a bit smaller due to increased resolution. Note also the LF (line feed) after line 20. This will bomb out in MSBASIC.

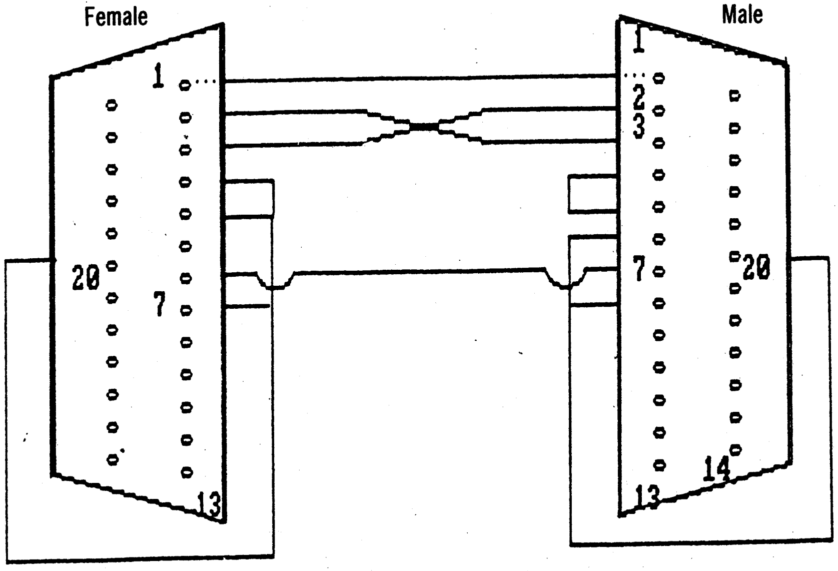
```
1 LET A=28.6
2 LET B=50.8
3 LET C=36.11
4 LET D=53.83
5 LET PI=3.141593
6 LET F=25.4
7 CLS
10 PRINT ,,"NECK WRAP CALCULATION"
15 PRINT "  THIS PROGRAM CALCULATES THE MECHANICAL DESIGN PARAMETERS FOR "
16 PRINT"WRAP-AROUND NECK LABELS, FOR BOTTLES WITH TAPERED NECKS."
17 PRINT
20 PRINT " YOU WILL BE ASKED TO ENTER THE DIMENSIONS OF THE NECK AREA( A"
21 PRINT"FRUSTRUM).  THE PROGRAM WILL CALCULATE LABEL SIZE."
22 PRINT "  TO BEGIN PRESS ANY KEY"
24 IF INKEY$<>"" THEN GOTO 29
25 GOTO 24
29 GOSUB 695
30 GOSUB 900
31 PRINT "DO YOU WANT TO WORK IN METRIC(M) OR ENGLISH(E) UNITS?"
32 PRINT
33 PRINT "ENTER E OR M",,
34 INPUT E$
35 IF E$="E" THEN PRINT "WE LL USE ENGLISH UNITS(I.E. DEGIMAL INCH)"
36 IF E$="M" THEN PRINT "METRIC MEASUREMENTS MUST BE IN  MILLIMETERS"
37 IF E$<>"M" AND E$<>"E" THEN GOTO 33
38 REM PAUSE 240
39 CLS
```

Finally, adjusted for the PC. Changes are: 5. Explicit definition of PI., 8. Line 8 Removed, 10. "Print At" not valid, 20. EDLIN to remove LF, 20.-22. Number of characters/line adjusted, 38. There is no PAUSE command in MSBASIC.





Test Adaptor(sic)



Null Modem (no handshake)